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ABSTRACT

The purpose of this survey was to examine science education in the state of New Jersey. It is the sixth in a series of secondary school surveys which began in 1968-69. In this survey, 205 schools (38%) responded to the survey which contained over 150 questions. To facilitate comparisons, results have been summarized as percentages wherever possible. Reported in this document are general information, and characteristics of staffing, safety, staff development, curriculum, computers, teaching conditions, science supervisors and textbooks used in New Jersey schools. An overall summary is provided. (CW)

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A SURVEY OF SCIENCE TEACHING IN THE SECONDARY SCHOOLS OF NEW JERSEY

1989-90

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David A. Sousa

NEW JERSEY
SCIENCE SUPERVISORS ASSOCIATION, INC.

Affiliated with
NATIONAL SCIENCE
SUPERVISORS ASSOCIATION
and
NEW JERSEY
SCIENCE TEACHERS ASSOCIATION

A SURVEY OF SCIENCE TEACHING
IN THE
SECONDARY SCHOOLS OF NEW JERSEY
1989-90

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INTRODUCTION

The purpose of this survey is to examine science education in New Jersey. It is the 6th in a series of secondary school surveys which began in 1968-69.

The first three surveys were sent to public schools only. Non public schools have been included since the fourth survey in 1981-82. We have continued to find greater similarities than differences between the two types of schools.

To facilitate comparisons, results have been summarized as percentages wherever possible. Since not all respondents answer all questions, totals may differ from one questions to another. We have tried to improve the questions from survey to survey. In doing so, we have been greatly aided by your suggestions. Please continue to offer new questions or clearer ways of expressing existing ones.

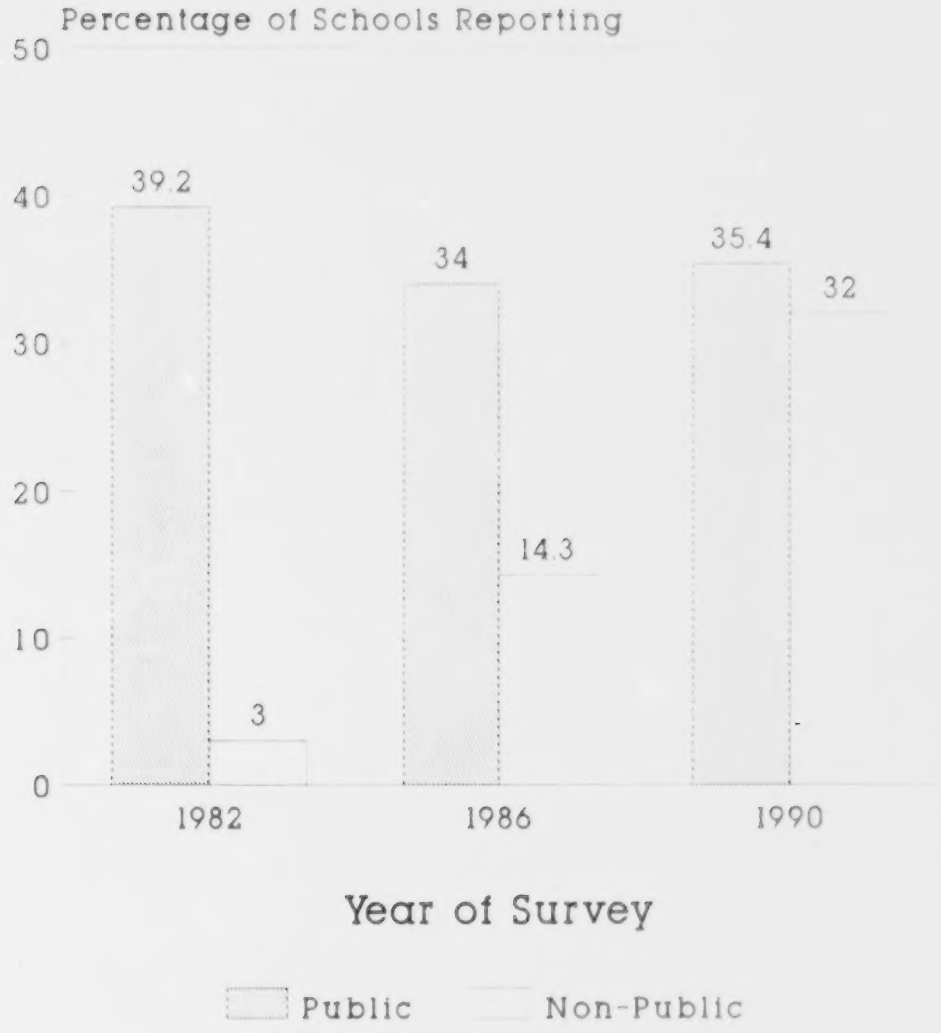
The NJSSA expresses its appreciation to those science supervisors who take the time to respond to the survey. We hope the information in this survey will assist efforts to improve science education in New Jersey.

Mary Ann Hull
David Sousa

May 1990

HIGHLIGHTS OF THE 1990 SURVEY

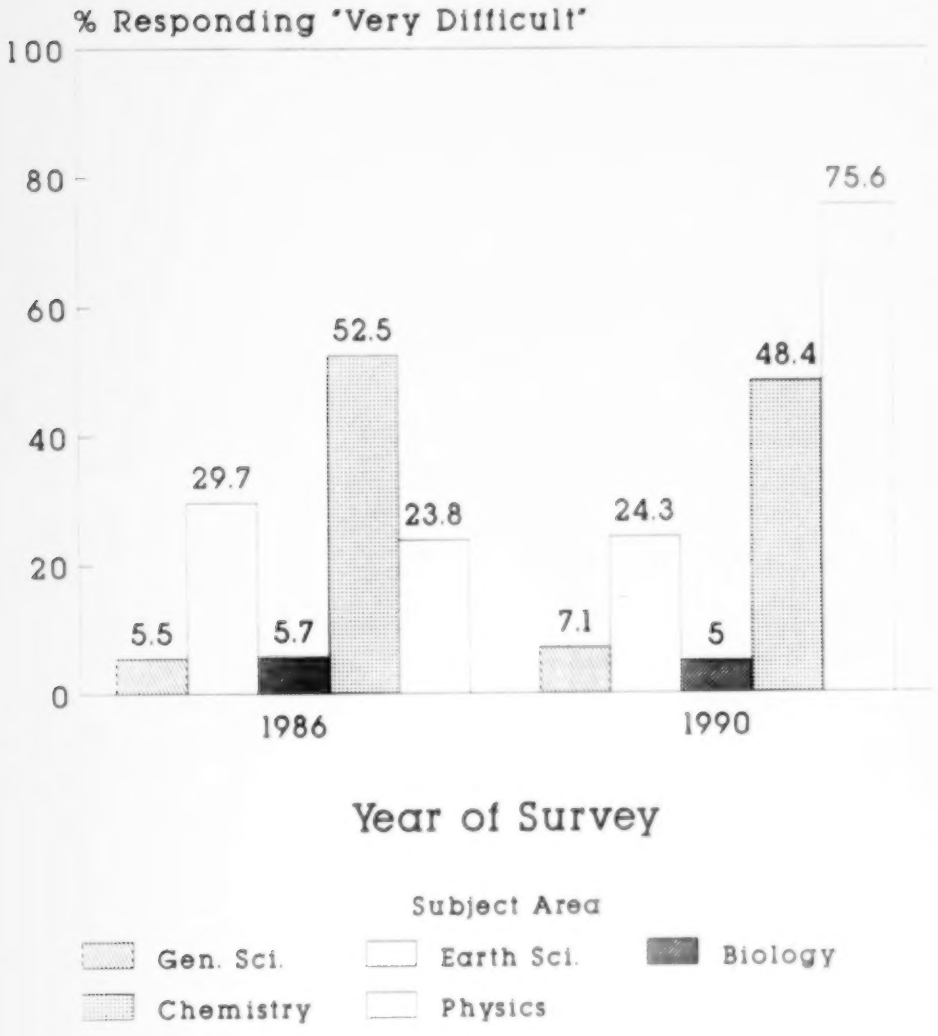
Decrease in Science Staff Due to Declining Enrollment



CHANGES IN SCIENCE STAFF

The percentage of public schools experiencing decreases in science staff held fairly steady, with 35.4% reporting staff decreases in 1990 compared to 34% in 1986 and 39.2% in 1982. On the other hand, the percentage of non-public schools reporting staff decreases continued to increase. It was only 3% in 1982, up to 14.3% in 1986, and jumped again to 32% in 1990, putting non-public school staff decreases close to that for public schools.

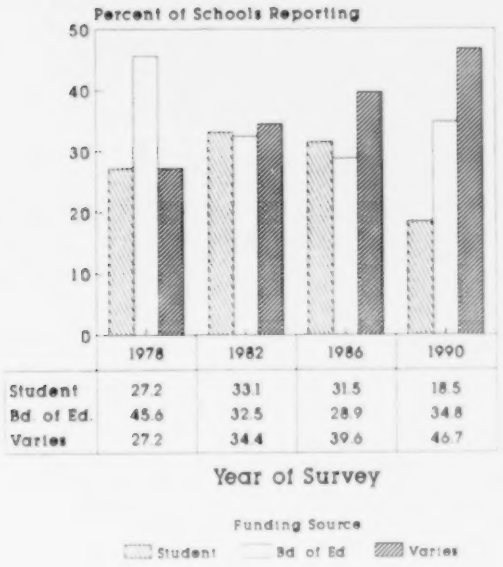
Difficulty in Recruiting New Science Teachers in Public Schools



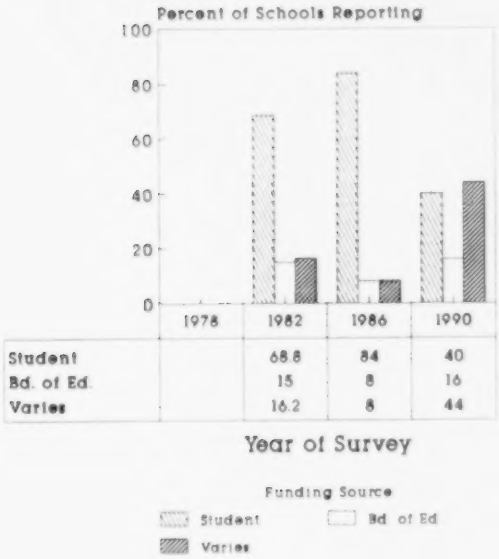
DIFFICULTY IN RECRUITING NEW SCIENCE TEACHERS

This graph shows the continuing difficulty that public schools have had in recruiting new science teachers. From 1986 to 1990 the degree of difficulty in recruiting chemistry, earth science and biology teachers decreased slightly, while for general science teachers, it increased slightly. The major change was in physics, where the difficulty in recruiting teachers jumped from 23.8% in 1986 to 75.6% in 1990. The 1990 levels of difficulty in recruiting for physics, chemistry and biology were slightly higher in non-public schools than in public, whereas it was lower for earth science and not applicable for general science.

Funding for Science Field Trips
Public Schools



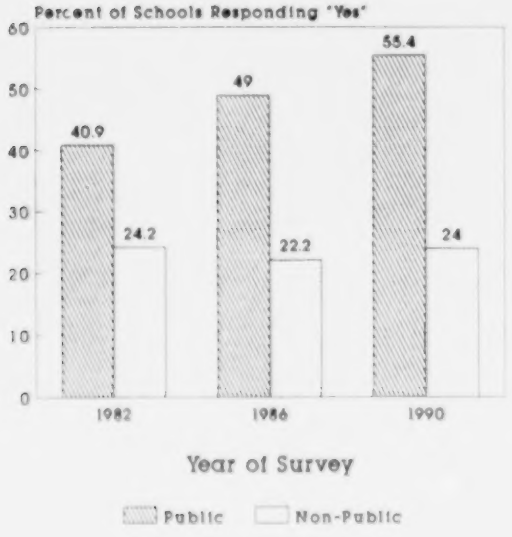
Funding for Science Field Trip
Non-Public Schools



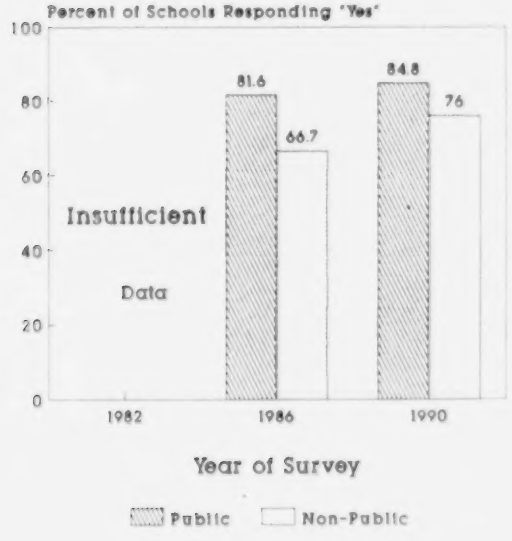
FUNDING FOR SCIENCE FIELD TRIPS

The source of funding for public school science field trips has switched away from students providing funding towards other sources. This trend has been even more dramatic for non-public schools but since student support started from a higher base it is still a more significant source at 40% than it is for public schools at only 18%.

Instructional Safety Program for Staff



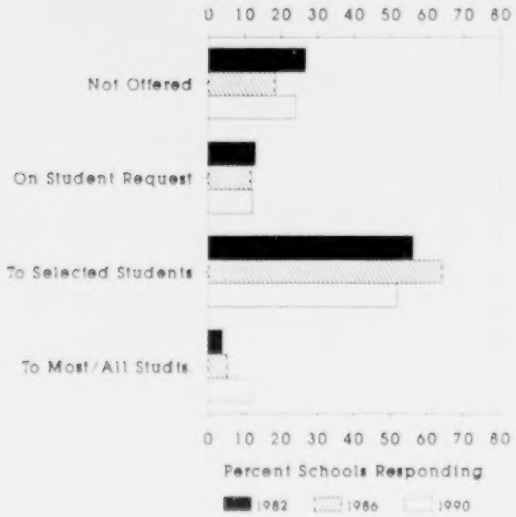
Instructional Safety Program for Students



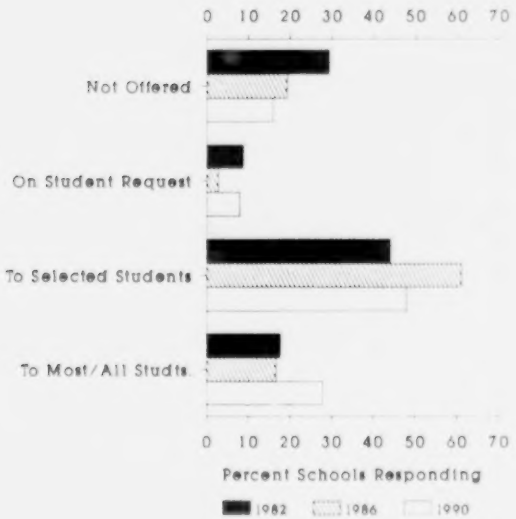
INSTRUCTIONAL SAFETY PROGRAMS

Instructional safety programs for public school science staff have increased slightly over the decade from 40% in 1982 to 49% in 1986 and 55.4% in 1990. On the other hand, instructional safety programs for non-public schools have remained in the low to mid-twenty percent range. Both public and non-public schools showed modest increases from 1986 to 1990 in instructional safety programs for students.

Biology Offerings in Grade 9
Public Schools



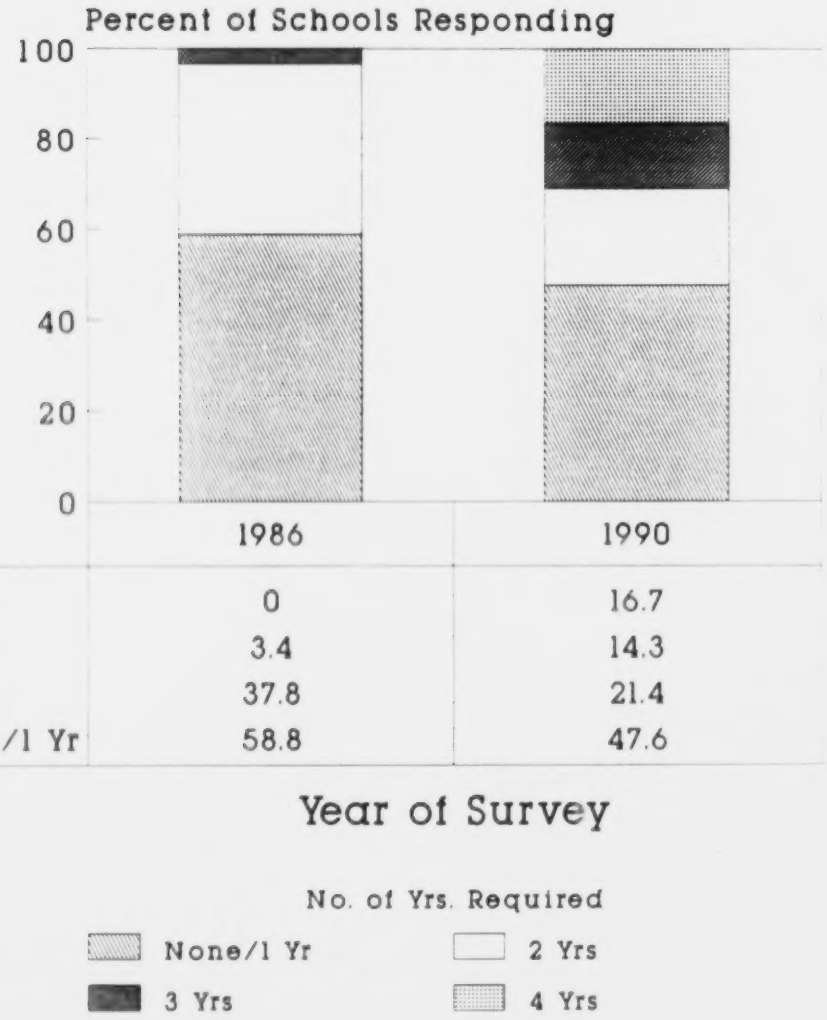
Biology Offerings in Grade 9
Non-Public Schools



BIOLOGY OFFERINGS IN GRADE 9

Biology offerings in 9th grade in public and non-public schools have not undergone a dramatic overall change since the previous survey in 1986. While offerings to "most or all students" have increased somewhat, offerings to the next highest category (selected students) have shown a corresponding decrease. If one combines these highest two categories for offerings of 9th grade biology, they represent about three-quarters of non-public and two-thirds of public schools in both 1986 and 1990.

Years of Science Required for Graduation - Public School



	1986	1990
4 Yrs	0	16.7
3 Yrs	3.4	14.3
2 Yrs	37.8	21.4
None/1 Yr	58.8	47.6

YEARS OF SCIENCE REQUIRED FOR GRADUATION IN PUBLIC SCHOOLS

In 1986 the majority of public schools required only one year or no years of science for graduation, while only 3.4% required three years and none required four years. In 1990, a slight majority of public schools required two or more years of science, and 31% now require three or four years. This increase most likely reflects the new state minimum science requirements for graduation.

Problems Concerning Science Supervisors - Public Schools

Problem	Rank		
	1990	1986	1982
Facilities	1	3	7
Curriculum Development	2	1	*
Quality of Science Teaching	3	*	*
Amt. Time for Teaching Science	4	*	*
Financial Support for Program	5	5	2
Matching Staff to Courses	6	2	1
Maintenance of Supplies & Equip	7	6	4
Staff Development	8	4	3
Recruiting New Teachers	9	7	6
Right-to-Know Responsibilities	10	*	*
Decreasing Enrollment	11	9	5

Problems Concerning Science Supervisors - Non-Public Schools

Problem	Rank		
	1990	1986	1982
Financial Support for Program	1	7	3
Facilities	2	4	6
Recruit New Teachers	2	8	4
Quality of Science Teaching	4	*	*
Curriculum Development	5	1	*
Maintenance of Supplies & Equip	6	3	5
Amt. of Time Teaching Science	6	*	*
Right-to-Know Responsibilities	6	*	*

(*)Not Included in Survey

RANKING OF PROBLEMS BY SCIENCE SUPERVISORS

The relative importance attached by science supervisors to the problems they face has been surveyed in 1982, 1986 and 1990. Public school supervisors now rate facilities as their greatest problem, followed by curriculum development and the quality of science teaching. The amount of time allocated for teaching science and financial support ranks fourth and fifth.

For non-public school science supervisors, the top-ranked problem is now financial support for the program. The second through fifth ranked problems in 1990 are facilities, recruitment of new teachers, quality of science teaching, and curriculum development. In 1986, curriculum development was ranked as the number one problem by both public and non-public schools.

THE 1990

SAMPLE

NEW JERSEY PUBLIC AND NON PUBLIC SECONDARY SCHOOLS

NUMBER OF SCHOOLS RESPONDING BY COUNTY

THE 1990 SAMPLE

Questionnaires were sent out to 540 public and non-public secondary schools in New Jersey. Just over 38% of the schools responded as follows:

		Sent Out	Received	%Response
1.	Public	340	180	52.9
	Non-public	200	25	12.5
	TOTALS	540	205	38.0

PART I GENERAL INFORMATION

2. Type of District	%Urban	%Suburban	%Rural
Public	23.3	67.6	9.1
Non-public	24.0	64.0	12.0

3. Type of Organization	%9-12	%10-12	%7-12	%Other
Public	77.7	2.2	10.6	9.5
Non-public	64.0	24.0	8.0	4.0

Percentage of Students Enrolled in:

4. All Science Courses:

	%Below 70	70-79	80-89	90-94	95-100
Public	8.1	29.4	37.5	13.2	11.8
Non-pub.	(Insufficient data)				

5. Biology:

	%Below 70	70-79	80-89	90-94	95-100
Public	5.5	7.5	9.7	14.5	62.8
Non-pub.	(Insufficient data)				

6. Chemistry:

	%Below 70	70-79	80-89	90-94	95-100
Public	8.9	11.7	21.5	37.9	20.0
Non-pub.	(Insufficient data)				

7. Physics:

	%Below 70	70-79	80-89	90-94	95-100
Public	43.4	22.8	18.6	10.4	4.8
Non-pub.	(Insufficient data)				

Average Student/Teacher Ratios in:

8. Biology:	%10-14:1	15-19:1	20-24:1	25-29:1	30:1+
Public	2.8	26.0	54.8	14.1	2.3
Non-pub.	12.0	16.0	32.0	32.0	8.0

Average Student/Teacher Ratios in:

	%10-14:1	15-19:1	20-24:1	25-29:1	30:1+
9. Chemistry					
Public	6.9	27.2	58.4	6.9	0.6
Non-pub.	16.0	32.0	28.0	16.0	8.0
10. Physics					
Public	16.1	43.7	32.8	6.9	0.6
Non-pub.	36.0	28.0	16.0	8.0	12.0

PART II STAFFING

11. Number of Teachers Engaged in Non-Science Activities

	%None	%1-2	%3-5	%6-8	%8+
Public	10.1	38.0	40.8	8.4	2.8
Non-pub.	16.0	44.0	32.0	8.0	0

12. Number of Teachers Pursuing Alternate Route Certification

	%None	%1	%2	%3	%4+
Public	70.5	20.5	6.8	2.3	0
Non-pub.	66.7	25.0	4.2	4.2	0

13. Decrease in Science Staff Due to Declining Enrollment

	%Yes	%No
Public	35.4	64.6
Non-pub.	32.0	68.0

14. Have Science Teachers Resigned for Business/Industry

	%Yes	%No
Public	15.2	84.8
Non-pub.	24.0	76.0

15. Number of Science Teachers that Resigned for Business and Industry

	%1	%2	%3	%4	%5+
Public	66.7	27.3	6.1	0	0
Non-pub.	50.0	33.3	16.7	0	0

16. Number of Staff Planning to Retire in Next 3 Years

	%1	%2	%3	%4	%5+
Public	56.6	32.6	7.0	3.1	0.8
Non-pub.	93.8	6.2	0	0	0

17. Number of Science Vacancies Anticipated in Next 3 Years

	%1	%2	%3	%4	%5+
Public	46.6	29.5	15.1	6.8	2.1
Non-pub.	66.7	22.2	11.1	0	0

18. Number of Staff with Part-time (out-of-school) Jobs

	%1	%2	%3	%4	%5+
Public	25.2	22.5	22.5	13.9	15.9
Non-pub.	73.3	6.7	6.7	6.7	6.7

Number of Staff Working in Summer

19. Full-time:

	%1	%2	%3	%4	%5+
Public	15.5	24.8	18.6	18.0	23.0
Non-pub.	47.1	11.8	17.6	5.9	17.6

20 Part-time:

	%1	%2	%3	%4	%5+
Public	28.5	25.2	18.5	12.6	15.2
Non-pub.	20.0	33.3	26.7	13.3	6.7

Difficulty in Recruiting New Teachers in

21.Biology:

	%Not Diff	%Moderately Diff	%Very Diff
Public	56.9	31.1	5.0
Non-pub.	36.0	52.0	12.0

22.Chemistry:

	%Not Diff	%Moderately Diff	%Very Diff
Public	12.1	39.5	48.4
Non-pub.	12.0	24.0	64.0

23. Physics:

	%Not Diff	%Moderately Diff	%Very Diff
Public	7.1	17.3	75.6
Non-pub.	12.0	4.0	84.0

24. General Science:

	%Not Diff	%Moderately Diff	%Very Diff
Public	55.6	37.3	7.1
Non-pub.	54.5	45.5	0

25. Earth Science:

	%Not Diff	%Moderately Diff	%Very Diff
Public	31.4	44.3	24.3
Non-pub.	33.3	44.4	22.3

26. Funding for Science Field Trips Paid by

	%Student	%Bd of Ed.	%Combin.	%Varies
Public	18.5	34.8	36.5	10.2
Non-pub.	40.0	16.0	12.0	32.0

27. Average Number of Science Department Field Trips Per Year

	%None	%1-5	%6-10	%11-15	%15+
Public	3.4	70.3	16.0	6.3	4.0
Non-pub.	8.0	64.0	12.0	8.0	8.0

PART III SAFETY

School Has Instructional Program on Science Safety for
28. Staff

	%Yes	%No
Public	55.4	44.6
Non-pub.	24.0	76.0

29. Students

	%Yes	%No
Public	84.8	15.2
Non-pub.	76.0	24.0

Approximate Number of Hours Spent on Safety Program for
30. Staff

	%2-4	%5-8	%9-12	%13-18	%19-25
Public	83.7	15.6	0	0.7	0
Non-pub.	86.7	6.7	0	0	6.7

31. Students

	%2-4	%5-8	%9-12	%13-18	%19-25
Public	78.5	17.8	2.5	1.2	0
Non-pub.	82.6	13.0	4.3	0	0

32. Administrative Body of School Has Adopted Safety Policy

	%Yes	%No
Public	52.3	47.7
Non-pub.	40.0	60.0

Right-to-Know (RTK) Activities and Training
33. Is There a Person in Charge of RTK?

	%Yes	%No
Public	79.2	20.8
Non-pub.	44.0	56.0

34. Do you do RTK training?

	%Yes	%No
Public	40.3	59.7
Non-pub.	32.0	68.0

35. Do you do RTK labeling?

	%Yes	%No
Public	59.0	41.0
Non-pub.	33.3	66.7

PART IV STAFF DEVELOPMENT

36. Is There Staff Development Program for Science?

	%Yes	%No
Public	45.6	54.4
Non-pub.	36.0	64.0

37. Stipends for In-Service on Non-School Hours/Days

	%Yes	%No
Public	46.3	53.7
Non-pub	36.0	64.0

38. Curriculum Development Work During the Summer

	%Yes	%No
Public	73.7	26.3
Non-pub.	48.0	52.0

39. Staff Reimbursed for Summer Curriculum Work

	%Yes	%No
Public	75.9	24.1
Non-pub.	13.0	87.0

40. Receive Expenses for Attending Conferences/Conventions

	%Yes	%No
Public	87.6	12.4
Non-pub.	70.8	29.2

41. Attend New Jersey Science Convention

	%Yes	%No
Public	77.5	22.5
Non-pub.	52.0	48.0

42. Teachers Receive Expenses for Attending Confer./Conven.

	%Yes	%No
Public	80.9	19.1
Non-pub.	60.0	40.0

43. Some Teachers Attend New Jersey Science Convention

	%Yes	%No
Public	88.8	11.2
Non-pub.	60.0	40.0

44. Reimbursed for Overnight Expenses

	%Yes	%No
Public	64.9	35.1
Non-pub.	29.2	70.8

45. Restrict No. of Staff Attending Professional Activities on a Given Day

	%Yes	%No
Public	84.8	15.2
Non-pub.	58.3	41.7

PART V CURRICULUM

46. Eighth Grade Science Offering

	%Earth	Gen'l	Physical	Life	Biology
Public	22.7	24.0	44.0	6.7	2.7
Non-pub.	28.6	7.1	57.1	7.1	0

47. Biology is Offered in Ninth Grade

	Not Offered	To Any Student Who Requests It	Only to Selected Students	To Most Studts	To All Studts
Public	24.0	12.3	52.0	6.7	5.0
Non-pub.	16.0	8.0	48.0	4.0	24.0

48. Course in Ecology Offered

	%Yes	%No
Public	34.3	65.7
Non-pub.	39.1	60.9

49. Ecology Course is

	%Addition to Bio I	%In Place of Bio I
Public	93.8	6.2
Non-pub.	90.0	10.0

Advanced Placement Course Offered in

50. Biology:

	%Yes	%No
Public	52.0	48.0
Non-pub.	60.0	40.0

51. Chemistry:

	%Yes	%No
Public	29.9	70.1
Non-pub.	27.3	72.7

52. Physics:

	%Yes	%No
Public	19.5	80.5
Non-pub.	26.1	73.9

53. Semester or 9-Week Courses in Science Offered

	%Yes	%No
Public	26.2	73.8
Non-pub.	34.8	65.2

54. Teachers of AP Courses have Additional Released Time

	%Yes	%No
Public	80.8	19.2
Non-pub.	75.0	25.0

55. Programs in Science for Gifted and Talented Students

	%Yes	%No
Public	32.1	67.9
Non-pub.	20.0	80.0

56. Special Programs in Science for the Slow Learner

	%Yes	%No
Public	69.5	30.5
Non-pub.	96.0	4.0

57. Years of Science Required for Graduation

	%None	%1	%2	%3	%4
Public	15.1	32.5	21.4	14.3	16.7
Non-pub.	12.5	4.2	16.7	25.0	41.7

58. Specific Science Courses Are Required for Graduation

	%Yes	%No
Public	87.2	12.8
Non-pub.	24.0	76.0

Science Courses Required for Graduation

59. Biology

	%Yes	%No
Public	57.9	42.1
Non-pub.	8.3	91.7

60. Earth Science

	%Yes	%No
Public	80.9	19.1
Non-pub.	16.0	84.0

61. Physical Science

	%Yes	%No
Public	93.3	6.7
Non-pub.	76.0	24.0

62. General Science

	%Yes	%No
Public	80.2	19.8
Non-pub.	62.5	37.5

63. Chemistry

	%Yes	%No
Public	6.7	93.3
Non-pub.	4.3	95.7

64. Physics

	%Yes	%No
Public	69.2	30.8
Non-pub.	0	100.0

PART VI COMPUTERS

Frequency of Use of Computers in

	%Frequently	%Occasionally	%Seldom	%Rarely
65. Biology				
Public	42.9	57.1	0	0
Non-pub.	0	100.0		
66. Earth Science				
Public	23.3	27.5	10.0	39.2
Non-pub.	52.4	23.8	9.5	14.3

	%Frequently	%Occasionally	%Seldom	%Rarely
67. Physics				
Public	6.7	86.1	0.5	6.7
Non-pub.	25.0	58.3	12.5	4.2
68. Chemistry				
Public	87.3	10.6	0.7	1.4
Non-pub.	89.5	10.5	0	0
69. Physical and General Science				
Public	92.4	5.5	1.4	0.7
Non-pub.	85.7	14.3	0	0

70. Purpose Department Uses Computers The Most

	%Initial Teaching	%Labs	Drill & Practice	Enrich-ment	Remedial Work
Public	93.4	5.8	0	0.8	0
Non-pub.	87.5	6.3	6.3	0	0

71. Purpose Supervisor Uses Computers the Most

	%Budget & Spreadsheet	%Word Pro-cessing	%Everything	%Nothing
Public	3.4	35.6	43.5	17.5
Non-pub.	8.3	41.7	25.0	25.0

Level of Experience With Computers

72. Supervisor's

	%Very Experienced	%Basically Competent	%Beginner	%No Experience
Public	20.1	45.3	29.1	5.5
Non-pub.	25.0	29.2	29.2	16.7

73. High school science students'

Public	2.3	42.6	50.0	5.1
Non-pub.	4.2	25.0	62.5	8.3

74. Current Attitude Toward Using Computers in Classroom

	%Very Positive	%Moderately Interested	%Little Interest	%Negative
Public	57.1	30.5	12.4	0
Non-pub.	26.1	60.9	13.0	0

75. Make of Computer Used the Most

	%Apple	Mac	IBM	Tandy	Other
Public	76.7	4.1	13.4	5.2	0.6
Non-pub.	50.0	5.0	30.0	15.0	0

PART VII TEACHING CONDITIONS

76. Average Number of Preparations per Science Teacher

	%1	%2	%3	%4	%5
Public	3.9	59.6	29.2	3.4	3.9
Non-pub.	4.0	48.0	24.0	12.0	12.0

77. Science Teachers Perform Additional Duties

	%Yes	%No
Public	93.8	6.2
Non-pub.	92.0	8.0

78. Additional Duties: Average Number of Periods per Week

	%1-2	%3-4	%5-6	%7-8	%9+
Public	6.0	19.6	67.9	3.0	3.6
Non-pub.	30.4	34.8	30.4	0	4.3

79. Science Prep Period Provided in Lieu of Other Duties

	%Yes	%No
Public	26.6	73.4
Non-pub.	28.0	72.0

80. Average No. of Prep Periods per Week for Science Teachers

	%1-2	%3-4	%5-6	%7-8	%9+
Public	5.1	3.4	74.3	9.1	8.0
Non-pub.	12.5	37.5	45.8	0	4.2

81. Stock Rooms Separated from Classrooms

	%Yes	%No
Public	84.8	15.2
Non-pub.	75.0	25.0

82. Preparation Space Separate from Classrooms

	%Yes	%No
Public	68.0	32.0
Non-pub.	100.0	0

83. Paid Laboratory Assistant

	%Yes	%No
Public	5.1	94.9
Non-pub.	16.0	84.0

Is Lab Assistant

84.

	%Adult	%Student	%Both
Public	37.5	37.5	25.0
Non-pub.	100.0	0	0

85.

	%Full-time	%Part-time	%Varies
Public	7.5	27.7	64.8
Non-pub.	4.0	20.0	76.0

86. Frequency of Curriculum Revision

	%Yearly	%Every 2-3 Yrs	%Every 4 Yrs	%Every 5 Yrs	%Varies
Public	6.1	22.3	20.9	50.7	0
Non-pub.	0	6.3	18.8	62.5	12.5

97. Number of Teaching Periods per Week

	%5	%10	%15	%20	%25
Public	2.8	20.9	68.4	4.5	3.4
Non-pub.	0	12.0	64.0	24.0	0

Certificates Supervisor Holds

	%Yes	%No
98. Supervisor's		
Public	27.5	72.5
Non-pub.	72.0	28.0
99. Principal's		
Public	91.9	8.1
Non-pub.	80.0	20.0

100. Supervisor's/Principal's Certificate Required for Job

Public	80.0	20.0
Non-pub.	4.0	96.0

101. Length of Supervisor's Contract

	%Tchr's Calendar	%10.5 Months	%11 Months	%12 Months	%Other
Public	49.2	18.1	5.6	19.8	7.3
Non-pub.	45.8	4.2	4.2	25.0	20.8

102. Salary Guide for Supervisor

	%Admin	%Superv	%Tchr+ Stipend	%Tchr	%Other
Public	23.7	39.5	27.7	7.3	1.7
Non-pub.	4.0	12.0	40.0	20.0	24.0

Over Past Three Years, Governing Body has Changed Number of

103. Supervisory Positions

	%Reduced	%Maintained	%Increased
Public	25.1	56.0	18.8
Non-pub.	24.0	64.0	12.0

104. Areas Supervised

Public	3.4	75.4	21.2
Non-pub.	4.2	95.8	0

Degree of Responsibility for the Following Areas

	%Max --->	% ---->	% ---->	% ---->	%Min
105. Conduct Dept. Meetings					
Public	89.8	4.5	1.2	1.7	2.8
Non-pub.	95.7	4.3	0	0	0
106. Conduct Demo Lessons					
Public	18.6	11.3	19.8	14.1	36.2
Non-pub.	8.7	8.7	17.4	13.0	52.2

87. Participants in Curriculum Revision

	%Just Tchers	%Tchers, Supv/Adm	%Tchers, Adm/Studt	%Tchers, Supv/Adm Parents	%Varies
Public	29.3	37.4	10.9	22.4	0
Non-pub.	21.7	17.4	21.7	34.8	4.3

Number of Double Laboratory Periods per Week in

	%None	%1	%2	%3
88. Earth Science				
Public	15.3	38.6	16.5	29.6
Non-pub.	16.0	20.0	20.0	44.0
89. Physical Science				
Public	4.2	23.0	21.8	51.0
Non-pub.	0	15.0	15.0	70.0
90. General Science				
Public	5.5	41.1	26.4	30.0
Non-pub.	5.0	35.0	30.0	30.0
91. Biology I				
Public	50.8	49.2	0	0
Non-pub.	48.0	52.0	0	0
92. Chemistry				
Public	33.3	66.7	0	0
Non-pub.	32.0	68.0	0	0
93. Physics				
Public	31.5	68.5	0	0
Non-pub.	28.0	72.0	0	0

94. Over the Past Three Years, No. of Double Lab Periods

	%Stayed the Same	%Increased	%Decreased
Public	14.2	85.8	0
Non-pub.	0	100.0	0

PART VIII SCIENCE SUPERVISOR

95. Title

	%K-12 Sci Supervisor	%9-12 Sci Supervisor	%Dept Chair	%Dept Head	%Other
Public	62.4	37.6	0	0	0
Non-pub.	63.6	36.4	0	0	0

96. Supervisor Position Includes Teaching

	%Yes	%No
Public	79.9	20.1
Non-pub.	54.2	45.8

Degree of Responsibility for the Following Areas (con't)

	%Max --->	% ---->	% ---->	% ---->	%Min
107. Evaluate Curriculum					
Public	64.2	23.3	10.2	1.1	1.1
Non-pub.	54.5	36.4	4.5	0	4.5
108. Write Curriculum					
Public	41.2	27.1	22.0	5.1	4.5
Non-pub.	34.8	17.4	30.4	13.0	4.3
109. Select Curriculum					
Public	55.4	27.1	13.6	1.7	2.3
Non-pub.	36.4	40.9	13.6	4.5	4.5
110. Construct Dept. Exams					
Public	13.5	14.0	20.8	16.9	34.8
Non-pub.	17.4	8.7	13.0	13.0	47.8
111. Evaluate Test Results					
Public	23.2	27.7	19.8	12.4	16.9
Non-pub.	8.7	21.7	21.7	30.4	17.4
112. Review Dept. Tests					
Public	37.3	15.3	20.9	13.6	13.0
Non-pub.	8.7	21.7	17.4	17.4	34.8
113. Evaluate Grading Systems					
Public	25.3	19.7	25.3	12.9	16.9
Non-pub.	13.0	26.1	26.1	21.7	13.0
114. Write Course Proficiencies					
Public	36.7	28.8	23.2	6.2	5.1
Non-pub.	18.2	4.5	31.8	13.6	31.8
115. Review Course Proficiencies					
Public	56.3	26.1	11.4	4.5	1.7
Non-pub.	27.3	18.2	18.2	13.6	22.7
116. Review Lesson Plans					
Public	65.3	14.2	5.7	5.7	9.1
Non-pub.	21.7	13.0	21.7	13.0	30.4
117. Develop Dept. Budget					
Public	79.5	13.6	1.7	1.1	4.0
Non-pub.	73.9	13.0	4.3	0	8.7
118. Select & Purchase Dept. Materials					
Public	72.9	16.4	8.5	1.1	1.1
Non-pub.	65.2	26.1	4.3	4.3	0
119. Do Right-to-Know Labeling					
Public	41.7	16.0	7.4	9.1	25.7
Non-pub.	28.6	0	14.3	9.5	47.6

Degree of Responsibility for the Following Areas (con't)

	%Max --->	% ---->	% ---->	% ---->	%Min
120. Prepare Purchase Orders					
Public	69.7	10.9	5.7	5.1	8.6
Non-pub.	69.6	8.7	17.4	0	4.3
121. Do Inventory					
Public	49.7	22.8	15.8	4.7	7.0
Non-pub.	26.1	17.4	34.8	8.7	13.0
122. Distribute Science Supplies & Texts					
Public	69.9	13.9	6.9	4.0	5.2
Non-pub.	34.8	13.0	21.7	21.7	8.7
123. Assist with Lab Set-ups					
Public	6.9	9.2	20.1	22.4	41.4
Non-pub.	13.0	4.3	21.7	21.7	39.1
124. Schedule Classes					
Public	43.8	17.4	16.3	7.3	15.2
Non-pub.	12.5	12.5	8.3	25.0	41.7
125. Schedule Teachers					
Public	59.0	19.7	6.9	4.0	10.4
Non-pub.	20.8	29.2	4.2	25.0	20.8
126. Public Relations					
Public	22.4	39.1	21.8	10.3	6.3
Non-pub.	12.5	12.5	25.0	25.0	25.0
127. Conduct Classroom Observations					
Public	78.7	6.3	0	0.6	14.4
Non-pub.	54.5	18.2	4.5	9.1	13.6
128. Write Annual Evaluations					
Public	73.1	6.9	2.3	2.3	15.4
Non-pub.	36.4	13.6	13.6	9.1	27.3
129. Write Prof. Improvement Plans for Teachers					
Public	70.6	6.2	1.1	4.5	17.5
Non-pub.	15.8	5.3	21.1	10.5	47.4
130. Recruit Science Teachers					
Public	47.8	16.3	16.3	9.6	10.1
Non-pub.	17.4	17.4	26.1	13.0	26.1
131. Interview Science Candidates					
Public	53.4	22.4	13.2	5.2	5.7
Non-pub.	22.7	40.9	22.7	0	13.6
132. Match Staff to Courses					
Public	29.9	22.4	27.0	8.6	12.1
Non-pub.	8.0	16.0	28.0	16.0	32.0

Degree of Responsibility for the Following Areas (con't)

	%Max --->	% ---->	% ---->	% ---->	%Min
133. Recruit New Teachers					
Public	26.7	18.2	26.1	13.1	15.9
Non-pub.	24.0	28.0	20.0	8.0	20.0
134. Facilities					
Public	43.1	21.3	20.1	10.3	5.2
Non-pub.	24.0	8.0	28.0	16.0	24.0
135. Amount of Time for Teaching Science					
Public	35.5	24.4	20.9	6.4	12.8
Non-pub.	16.0	20.0	20.0	12.0	32.0
136. Decreasing Enrollment					
Public	21.1	16.0	24.0	13.1	25.7
Non-pub.	8.0	24.0	20.0	24.0	24.0
137. Quality of Science Teaching					
Public	37.9	25.3	21.3	6.9	8.6
Non-pub.	20.8	25.0	25.0	4.2	25.0
138. Financial Support for Program					
Public	33.7	23.0	23.0	9.0	11.2
Non-pub.	25.0	20.8	25.0	12.5	16.7
139. Maintenance of Supplies & Equipment					
Public	27.7	33.9	22.0	9.6	6.8
Non-pub.	16.0	32.0	32.0	4.0	16.0
140. Staff Development					
Public	27.5	37.1	21.3	7.9	6.2
Non-pub.	8.0	24.0	48.0	0	20.0
141. Curriculum Development					
Public	38.1	26.1	21.6	9.1	5.1
Non-pub.	20.0	36.0	28.0	4.0	12.0
142. Right-to-Know Responsibilities					
Public	23.0	24.2	20.2	12.9	19.7
Non-pub.	16.0	12.0	16.0	24.0	32.0
143. Student Scheduling					
Public	9.0	14.7	28.8	17.5	29.9
Non-pub.	8.0	4.0	20.0	20.0	48.0
144. Increasing Enrollment					
Public	8.2	12.3	17.5	9.9	52.0
Non-pub.	8.7	4.3	13.0	8.7	65.2
145. Other					
(Insufficient Data)					

TEXTBOOKS USED IN PUBLIC AND NON-PUBLIC SCHOOLS

Texts specified by four or more public and non-public schools are listed below for first and second year courses as well as for advanced placement courses.

FIRST YEAR COURSES

	TITLE PUBLISHER	# OF SCHOOLS
PHYSICAL SCIENCE		
Physical Science	Silver Burdett	59
Physical Science	Scott Foresman	33
Focus on Physical Science	Merrill	27
Physical Science	Holt	26
IPS	Prentice Hall	22
The Natural World 2	Silver Burdett	18
Physical Science Investigations	Houghton Mifflin	17
Physical Science	Addison Wesley	14
Physical Science	Prentice Hall	14
Spaceship Earth: Physical Science	Houghton Mifflin	12
Physical Science	Heath	7
Physical Science/Key Idea	Prentice Hall/Globe	6

	TITLE PUBLISHER	# OF SCHOOLS
EARTH SCIENCE		
Investigating Earth	Houghton Mifflin	84
Exploring Earth Science	Allyn Bacon/Prentice Hall	77
Earth Science	Holt	54
Earth Science	Heath/Namowitz	30

	TITLE PUBLISHER	# OF SCHOOLS
EARTH SCIENCE (con't)		
Focus on Earth Science	Merrill	25
Earth Science	Scott Foresman	14
Earth Science	Silver Burdett & Ginn	9
Experiences in Earth-Space Science	Glencoe/Macmillan	7
BIOLOGY		
Modern Biology	Holt	94
Biology: The Study of Life	Allyn & Bacon/Prentice Hall	47
BSCS Blue Version	Heath	42
Experiences in Biology	Glencoe/Macmillan	39
Biology: Living Systems	Merrill	34
Biology: An Everyday Experience	Merrill	33
Biology	HBJ	32
BSCS Green Version	Kendall Hunt	20
Biology	Scott Foresman	19
Biology: The Living World	Prentice Hall	16
Biology	Heath	13
Biology: Systems Approach	Addison Wesley	12
Biology	Silver Burdett	8
Biology and Human Progress	Prentice Hall	5
Biology	Houghton Mifflin	4
CHEMISTRY		
Chemicals in Action	Holt	35
Chemistry	Heath	34
CHEM STUDY	Prentice Hall	23
Chemistry	Addison Wesley	22

TITLE PUBLISHER		# OF SCHOOLS
CHEMISTRY(con't)		
The Chemical World	Houghton Mifflin	19
Modern Chemistry	Holt	18
Chemistry: Modern Course	Merrill	15
SPICE	Kendall Hunt	10
Chemistry	Holt (Masterton)	8
Chem Con	Kendall Hunt	6
Chemistry	Allyn & Bacon/Cebco	5
PHYSICS		
Concepts in Physics	HBJ	28
PSSC Physics	Heath	14
Physics: Fundamentals	Houghton Mifflin	10
Modern Physics	Holt	9
Physics	Prentice Hall (Giancoli)	8
Physics	Benjamin Cummings	7
Conceptual Physics	Addison Wesley	6
Physics: Principles and Problems	Merrill	6
Project Physics	Holt	4

SECOND YEAR COURSES

BIOLOGY II (28 titles listed)		
Modern Physiology	Holt	6
Biology	Worth (Curtis)	5
CHEMISTRY II (14 titles listed)		
Chemical Principles	Saunders (Masterton)	6
Introduction to Organic Chemistry	Heath	4

CHEMISTRY II (con't)	TITLE PUBLISHER	# OF SCHOOLS
Chemistry	Heath (Zumdahl)	4
College Chemistry	Heath	4
PHYSICS II (9 titles listed)		
Physics	Addison Wesley (Sears et al)	4
University Physics	Addison Wesley (Sears et al)	4
ADVANCED PLACEMENT BIOLOGY (15 titles listed)		
Biology	Worth (Curtis)	17
Biology	Saunders (Arms & Camp)	15
Biological Science	Norton (Keeton)	11
Biology	Benjamin Cummings (Campbell)	4
Biology	Addison Wesley (Campbell)	4
ADVANCED PLACEMENT CHEMISTRY (16 titles listed)		
Chemical Principles	Saunders (Masterton)	25
Chemistry	Heath (Zumdahl)	10
Chemistry	Prentice Hall (Brown, LeMay)	5
ADVANCED PLACEMENT PHYSICS (12 titles listed)		
College Physics	Addison Wesley (Sears, et.al.)	14
University Physics	Addison Wesley	6
Fundamentals of Physics	Wiley (Halliday, Resnick)	6

TOP TEXTBOOKS

1990 (N= 205*)

PHYSICAL SCIENCE	Physical Science, Silver Burdett	29%
	Physical Science, Scott Foresman	16%
	Focus on Physical Science, Merrill	13%
EARTH SCIENCE	Investigating Earth, Houghton Mifflin	43%
	Exploring Earth, Allyn Bacon/Prentice Hall	38%
	Earth Science, Holt	26%
BIOLOGY	Modern Biology, Holt	46%
	Bio: Study of Life, Allyn Bacon/Prentice Hall	30%
	BSCS Blue Version, Heath	20%
CHEMISTRY	Chemicals in Action, Holt	17%
	Chemistry, Heath	17%
	CHEM STUDY, Prentice Hall	11%
PHYSICS	Concepts in Physics, HBJ	14%
	PSSC Physics, Heath	6%
	Physics, Houghton Mifflin	4%

* Number of respondents

TOP TEXTBOOKS 1969-1990

COURSE	1990 (N=205)		1986 (N=187)		1982 (N=210)		1978 (N=143)		1974 (N=138)		1969 (N=168)	
EARTH SCIENCE	EXPLORING EARTH AB/PH	38%	EARTH SCIENCE Heath	19%	EARTH SCIENCE Heath	11%	EARTH SCIENCE Heath	15%	ESCP Houghton Miff	15%	ESCP Houghton Miff	26%
	INVESTIGATING EARTH, Houghton	29%	MODERN ES Holt	15%							EARTH SCIENCE Heath	4%
	EARTH SCIENCE Holt	26%										
PHYSICAL SCIENCE	PHYSICAL SCI Silver Burdett	29%	IPS Prentice Hall	29%	IPS Prentice Hall	25%	IPS Prentice Hall	24%	IPS Prentice Hall	22%	IPS Prentice Hall	17%
	PHYSICAL SCI Scott Foresman	16%	FOCUS Merrill	14%	FOCUS Merrill	8%	ISCS Silver Burdett	10%	ISCS Silver Burdett	8%		
	FOCUS Merrill	13%										
BIOLOGY	MODERN BIO Holt	46%	MODERN BIO Holt	50%	MODERN BIO Holt	44%	MODERN BIO Holt	52%	BSCS YELLOW Heath	34%	MODERN BIO Holt	38%
	BIOLOGY AB/PH	30%	BSCS BLUE Heath	24%	BSCS BLUE Heath	17%	BSCS BLUE Heath	22%	MODERN BIO Holt	33%	BSCS YELLOW Heath	20%
	BSCS BLUE Heath	20%	LIVING SYSTEMS Merrill	14%	BSCS GREEN Rand McNally	14%	BSCS GREEN Houghton Miff	21%	BSCS GREEN Houghton Miff	32%	BSCS BLUE Heath	16%
CHEMISTRY	CHEM IN ACTION Holt	17%	MODERN CHEM Holt	45%	MODERN CHEM Holt	38%	MODERN CHEM Holt	46%	CHEM STUDY Freeman	49%	MODERN CHEM Holt	43%
	CHEMISTRY Heath	17%	CHEM-MODERN COURSE/Merrill	23%	CHEM STUDY Prentice Hall	25%	CHEM STUDY Prentice Hall	43%	MODERN CHEM Holt	28%	CHEM STUDY Freeman	36%
	CHEM STUDY Prentice Hall	11%										
PHYSICS	CONCEPTS HBJ	14%	MODERN PHYS Holt	33%	MODERN PHYS Holt	31%	PSSC Heath	32%	PSSC Heath	46%	PSSC Heath	47%
	PSSC Heath	6%	PHYSICS, P&P Merrill	21%	PSSC Heath	23%	PROJECT PHYS Holt	31%	PROJECT PHYS Holt	38%	MODERN PHYS Holt	33%
	PHYSICS Houghton Mifflin	4%	PSSC Heath	16%	PROJECT PHYSICS Holt	20%	MODERN PHYS Holt	26%	MODERN PHYS Holt	13%		

N = Number of Respondents

END

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